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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,762	12/21/2004	Dag Olstein Eriksen	P18371USPC	4989
29078	7590	01/05/2007	EXAMINER	
CHRISTIAN D. ABEL			CLEMENTE, ROBERT ARTHUR	
ONSAGERS AS				
POSTBOKS 6963 ST. OLAVS PLASS			ART UNIT	
NORWAY, N-0130			PAPER NUMBER	
NORWAY			1724	

  

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

8

<b>Office Action Summary</b>	<b>Application No.</b> 10/518,762	<b>Applicant(s)</b> ERIKSEN ET AL.	
	<b>Examiner</b> Robert A. Clemente	<b>Art Unit</b> 1724	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: In page 5 line 34, page 6 lines 3 and 5, table 1 and 2, and other locations throughout the specification, commas are used as the decimal separator. The examiner suggests changing the commas to periods since the decimal point is used in the US. In page 9 line 9, "was" should be changed to --were--.

Appropriate correction is required.

### ***Claim Objections***

2. Claims 7 and 8 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

3. Claim 1 is objected to because of the following informalities: In page 15 line 13, "separated is employed" should be changed to --separated are employed--. In page 15 lines 12 and 13, "the hydrogen" should be changed to --hydrogen--.

Appropriate correction is required.

4. Claim 4 is objected to because of the following informalities: In page 15 line 27, "column are packed" should be changed to --column is packed--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 recites the limitations "the element" in page 15 line 12 and 13, and "the gaseous hydrides" in page 15 line 16. There is insufficient antecedent basis for these limitations in the claim.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,780,116 to Cheh et al.

Cheh et al. teaches a method for separation of isotopes, where a specific isotope composition is purified by exploiting the difference in the isotope's mass diffusivity by making the natural isotope composition, in one cycle, travel in a mass stream through a media by diffusion and optionally also convection, and thus obtain a fractioning of the isotopes such that the wanted isotope is enriched in one fraction of the mass stream,

Art Unit: 1724

collecting this enriched fraction of the mass stream and send it through another cycle to obtain a fraction with higher content of the wanted isotope, and repeat these cycles until the wanted isotope has become sufficiently enriched, characterized in that hydrogen is used as ligand on the element that is to be separated, and that the hydrogen and the element that is to be separated is employed in the form of a chemical compound that is in a gaseous state at the actual pressure and temperatures, and that the gaseous hydrides are separated by mass diffusion through a chromatographic column. In column 1 lines 5 – 10, Cheh et al. discloses a gas chromatography apparatus that can be used to separate mixtures of any and all of the hydrogen isotope dimers. Inherently this includes the separation of  $H_2$  from HD and HT. In this case hydrogen is used as the ligand and the element to be separated is also hydrogen. Inherently the use of a chromatographic column involves the method of making a composition, in one cycle, travel through a media by diffusion and obtain a fractioning of the isotopes such that the wanted isotope is enriched in one fraction of the mass stream and collected. As disclosed in column 3 lines 9 and 10, the column system may have several sections, thus the mass stream can flow through another cycle yielding a higher content of the wanted isotope. Inherently the cycles can be repeated as many times as desired in order to reach the desired purity of the wanted isotope.

***Allowable Subject Matter***

10. Claims 2 – 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

The examiner did not find any prior art that taught or suggested the use of gas chromatography to separate the isotopes of any of the elements listed in claims 2 or 3 of the instant application, characterized in that the elements are in the form of a gaseous hydrogen compound.

The examiner also did not find any prior art that taught or suggested the use of monodisperse polystyrene particles for packing in a chromatographic column that is used to separate isotopes.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Suslick discloses a photochromatography column used to separate the isotopes of hydrogen.

Abesadze et al. discloses a method of separating the isotopes of silicon or germanium using these elements in halide or hydro halide compounds.

Art Unit: 1724

Nagai et al. discloses the separation of isotopes of silicon using distillation and centrifugal separation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Clemente whose telephone number is (571) 272-1476. The examiner can normally be reached on M-F, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Smith Duane can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert A Clemente  
Examiner  
Art Unit 1724

DUANE SMITH  
PRIMARY EXAMINER

RAC

12-28-06